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EXAMINER

BELLINGER, JASON R

ART UNIT PAPER NUMBER

3617

DATE MAILED: 11/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/893,166

Applicant(s)

SCHLANGER, RAPHAEL

Examiner

Jason R Bellinger

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2004.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 124-126, 128-130 and 193-217 is/are pending in the application.
- 4a) Of the above claim(s) 125 and 126 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 193 and 211-217 is/are allowed.
- 6) ☒ Claim(s) 124, 128-130, 194-196 and 199-210 is/are rejected.
- 7) ☐ Claim(s) 127-128 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Election/Restrictions

1. Amended claims 125-126 are directed to a nonelected embodiment of the invention. Therefore, claims 125-126 continue to remain withdrawn from consideration.

Claim Objections

2. Claim 194 is objected to because of the following informalities: The limitations set forth in claim 194 are already present in independent claim 124 (see lines 6-7), from which claim 194 depends. Therefore, this claim should be cancelled, as it duplicates subject matter set forth in a previous claim. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 124, 128-130, 194-196, and 199-210 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson. Wilson shows a wheel having a peripheral wheel rim **B**, and a central hub **A** having a central axle and outer flange **F**. A plurality of pretensioned spokes **D** extends between the rim **B** and hub **A**. The spokes **D** have a first portion connected to the rim and a second portion opposed to the first portion and connected to the hub **A**.

The spokes **D** further include means, namely the unlabelled lock nuts, for adjusting the tension in the spokes **D**. This means for adjusting the tension are capable of selectively adjusting the pretension of the spokes **D**, and are threadable adjustment means.

A cavity is formed within the flange **F** for connection with at least one of the spokes **D**, the cavity being a blind cavity having at least one open end, closed longitudinal sides, and a closed bottom (that provides a longitudinal depth stop for the spoke). The longitudinal depth of the cavity is at least two times greater than the cross-sectional thickness of the spokes **D**. While Wilson does not specify that the cavity is preformed, given the fact that the threaded ends (which are a configured surface) of the spokes **D** do not appear to be of the true self-tapping type (namely having a conical end with large widely spaced threads), it would be obvious to one of ordinary skill in the art at the time of the invention that some form of preformed starting cavity would be required for the spokes **D** to be successfully threaded into the flange **F**. This preformed starting cavity could be formed by a simple method such as partially hammering a nail into the flange **F** and removing the nail, leaving a preformed opening for the spokes **D** to be threaded in to, with the cavity conforming to the threads.

A second portion of the spoke **D** is joined to the outer flange **F** by means of a deformed engagement, wherein the cavity is deformed by the spoke **D**, thus surrounding and enclosing the full cross-sectional perimeter of the spoke **D** in a deformed engagement region. The deformed engagement is an interference fit, and the

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cavity is maintained in the deformed condition. This results in a connection that resists relative movement between the cavity and the second portion of the spoke **D**.

The cavity is formed in a polymeric element that includes reinforcing fibers (see column 3, lines 31-34). This polymeric element is a thermoplastic.

The spoke **D** is helically threaded in the deformed engagement region, and thus resists being pulled out of the cavity from plastic and elastic deformation. The material of the spoke **D** has a hardness that is different than the material forming the cavity, and the material forming the cavity is softer than the material forming the spoke **D**.

At least one reinforcement element **f** is connected to the outer flange **F**. The reinforcement element **f** serves to reinforce the outer flange **F** to resist stress and deflection associated with spoke tensile forces. This reinforcement element **f** is a continuous annular element that includes a central opening to surround the axle, and provides reinforcement from radial and/or hoop stresses to the outer flange **F**.

Allowable Subject Matter

5. Claims 197-198 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. Claims 193, and 211-217 have been found to be allowable over the prior art.

Response to Arguments

7. Applicant's arguments filed 4 August 2004 have been fully considered but they are not persuasive. The Applicant argues that the Wilson reference does not show a deformed connection between the spokes and the cavity of the outer flange, stating "during the time of the Wilson reference, it was a common construction technique to thread the spoke directly to its hub flange". The Applicant then states that the "common technology of the time employed a pre-threaded hole, into which the spoke was threadably fastened, ... and there is no reason to think that Wilson would have employed a different system."

First, the Wilson reference does not specify the method in which the spokes are threaded into the outer flange of the hub, and therefore does not exclude any known method for threading two elements together. While the technique of providing a threaded hole for spokes to be threaded into may be common, it is not the only method of threading spokes to a hub flange. Second, the outer flange of the Wilson reference is made of a vulcanized fiber reinforced material. It is well known that a vulcanized, i.e. rubber, material has a certain degree of deformability. Therefore, even if a pre-threaded cavity were provided in the outer flange of Wilson, that cavity would deform to some extent when a spoke was threaded therein.

With regards to the Applicant's argument that the alternative embodiment of Wilson (drawn to a metallic hub flange) would be incapable of forming a deformed connection with the spoke, this embodiment of the Wilson reference is not relied upon to form the rejection.

The Applicant further argues that the wheel of the Wilson reference is a compression spoke wheel and not a tension spoke wheel. The Applicant argues that the Wilson reference is "clearly a compression spoke wheel" due to the reference not showing a means for adjusting the spoke tension or pretension and the rim has no head or swivel at the connection with the spoke.

However, the Examiner still feels that the Wilson reference is a tension spoke wheel. The invention of Wilson is drawn to the spoke and hub connection. Since the invention is not drawn to the rim, an exemplary rim is shown. Since the rim of Wilson is not the main feature of the invention, one of ordinary skill in the art would not automatically consider the wheel of Wilson to be a compression spoke wheel. In fact, one of ordinary skill would note the opposite and call it a tension spoke wheel.

First, the wheel of Wilson is constructed in the same manner as a bicycle wheel. In fact, the invention of Wilson is drawn to a Velocipede wheel. The spokes are not large enough in cross-section to support a large load in compression. Also, the spoke ends are threaded. The strength of this type of spoke end lies in tension, since it prevents the spokes from being torn from the hub by tensile loads. While no specific means for adjusting the tension of the spokes are shown, and the hub flanges are fixed to the hub, one of ordinary skill would realize that the tension adjusting means would constitute a spoke nipple connection at the rim. Therefore, one of ordinary skill would also substitute a suitable rim. However, it should be noted that the lock nuts shown in Wilson would be capable of adjusting the tension in the spokes. These lock nuts are shown in an exemplary manner, and given the fact that Wilson states that they are optional, it is obvious that means for adjusting the tension of the spoke would then be provided at or near the rim.

Wilson, Crecelius, Smith ('176), and Green (previously cited) all show examples of tension spoke wheels. Kennelly, Verplanck, and Murphy all show examples of compression spoke wheels. The tension spoke wheels all show spokes having a relatively small cross-sectional diameter when compared to the compression spoke

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wheels. This is due to the fact that the two types of spokes are designed to handle different stresses and forces. The tension spokes are designed to prevent tension loads radiating *away from* the hub from ripping the spoke ends from the hub or deforming the spokes, or hub. In essence, this means that the hub is supported by the rim through the tensioned spokes. The compression spokes are designed to prevent compression loads radiating *towards* the hub from deforming the spokes of hub. In essence, this means that the hub supports the rim through the compression spokes. A larger cross-sectional diameter facilitates the distribution of compressive loads.

Another difference between tension and compression wheels is the manner in which the spoke ends are designed. Typically, tension spoke ends (for connection to the hub) are designed to have threads, serrations, bent sections, or other roughened surface profiles to facilitate the retention of these spokes in the hub. The reason for this style of spoke end is to prevent the spoke from being pulled from the hub due to tensile loads. Compression spokes, on the other hand, typically do not require roughened or threaded, etc spoke ends due to the fact that compressive loads tend to push these spokes against the hub. Thus, there is little danger of compression spokes form being pulled from the hub.

8. In response to applicant's argument based upon the age of the references, contentions that the reference patents are old are not impressive absent a showing that the art tried and failed to solve the same problem notwithstanding its presumed knowledge of the references. See *In re Wright*, 569 F.2d 1124, 193 USPQ 332 (CCPA 1977).

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The references are considered to show wheels having deformed engagements between spokes and a hub. For example, Little shows a wheel of the type described above.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason R Bellinger whose telephone number is 703-308-6298. The examiner can normally be reached on Mon - Thurs (9:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Morano can be reached on 703-308-0230. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

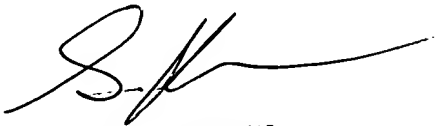
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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jason R Bellinger
Examiner
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